Simplifying Accessibility - STEM Supplemental Document
Simplifying Accessibility Key Points

Alt Text

Summary: Include a meaningful, helpful, context-considerate description for all essential imagery.

Rules Overview:

1. For all essential imagery, a text-based alternative must be provided.
2. Add alt text if the image helps learners understand the content.
3. A 150-character maximum is a good limit to go by.

Videos

Summary: Provide a text-based alternative (captions or transcript) to all narration and an image description for all essential imagery that goes undescribed in the text.

Rules Overview:

1. Always include captions, and always double-check them if they're auto-generated.
2. When you record your screen, describe the details of what you're demonstrating aloud as you demonstrate it.
3. If all essential visuals aren't fully narrated, make a transcript with an imagery description section.

Bonus Tip! Consider inclusive language use in your course by avoiding colloquial language and stating information as concisely as possible.

Documents

Summary: Ensure your documents include proper structure and descriptions for all essential visuals.

Rules Overview:

1. Word Docs are preferred over PDFs.
2. If you make a PDF, make the source doc accessible first.

3. Always export as a PDF using the proper method.

Bonus Tip! Be sure to utilize the correct heading structure and avoid formatting with "enter" only.

General Accessibility Resources

- **WebAIM Color Contrast Checker:** A tool that allows users to check whether the text and background colors on a page meet contrast standards, ensuring visual accessibility for students with vision impairments.
- **W3C AltText Decision Tree:** A resource that guides when and how to provide alternative text for images, helping content creators ensure that all visual materials are accessible to students using screen readers.
- **Deque NVDA Keyboard Shortcuts:** A comprehensive list of essential keyboard shortcuts for NVDA, a popular screen reader. This helps students who rely on keyboard navigation access web content efficiently.
- **W3C Home Page Accessibility Demonstration:** A set of examples from W3C on how to properly format web pages for accessibility, which includes the use of headings, lists, and other structural elements essential for creating accessible content in any subject.

STEM Accessibility Tips

- **Section 508 about Accessible Equations/Formulas:** Follow Section 508 guidelines by using accessible math formats like Unicode, LaTeX, or MathML. For complex formulas, provide alt text or create images with descriptions to ensure screen reader compatibility.
- **NVDA with MathCat:** NVDA does not natively read math expressions well, so combine it with MathCat, a plugin that enhances NVDA's ability to read and interpret math content accurately.
- **Keyboard Navigation:** Ensure all interactive elements in your STEM content (e.g., simulations, quizzes) are fully operable with keyboard navigation to assist students using assistive technology.
    - Try testing interactions using Tab, Enter, Space, and Arrow keys. Make sure the tab order makes sense and it's clear which item is currently selected.
    - **Bonus Tip!** Try using a screen reader like **NVDA** or **VoiceOver** to check the experience.
- **Effective Practices for Description (WGBH):** Guidelines for providing accessible descriptions of charts, graphs, and diagrams across STEM disciplines,

ensuring clarity for students using assistive technologies.

Math Accessibility Resources

Math Creation Tools

- **Math Markup Languages:** Use math markup languages like LaTeX or **MathML** to create and access digital math expressions.
- **Math Editors:** Tools like **MathType** (available in BrightSpace and CourseArc) automatically create accessible math content.
- **MathML:** A markup language designed for math on the web. It provides detailed descriptions and guidance for embedding accessible math in HTML.
- **MathJax:** An open-source JavaScript display engine that allows math content to be easily rendered in a wide variety of browsers, ensuring accessibility. Please note that **Bluebook implements MathJax** Assistive MML technology in the platform.
- **EquatIO:** A tool that allows teachers to create accessible digital math content with support for LaTeX, MathML, and other math notations. It integrates with many virtual learning environments. EquatIO has **two versions**.

Math Accessibility Guidelines

- **Pearson A11y Math Accessibility:** Pearson provides comprehensive guidelines for making math content accessible, including support for LaTeX and MathML.
  - **Table Guidance from Pearson:** Pearson provides best practices for creating accessible tables in math and other STEM content.
- **MathSpeak Grammar Rules:** A set of grammar rules developed to help screen readers navigate and correctly interpret math expressions for blind or visually impaired students.

Math Accessibility Support

- **Tactile Graphic Image Library:** A collection of tactile graphics that make visual math concepts accessible to blind and low-vision students.
- **Desmos Accessibility Features:** Desmos, a popular online graphing calculator, has built-in accessibility features that allow students with disabilities to interact with graphs and equations more easily.
  - **Deep Dive into Desmos Accessibility:** This in-depth guide offers insights into how to optimize the use of Desmos for students using screen

readers or other assistive devices.

- **Math Assistant in OneNote:** This can be used to **create math equations from ink/text** or **solve math problems**.

Science Accessibility Resources

- **Pearson A11y Science Accessibility:** Pearson's guidelines for making digital science content accessible.
- **AccessSTEM Overview:** Guidelines for ensuring that STEM content, including science, is accessible to students with disabilities.
- **PhET Simulation Inclusive Design:** Offers simulations for physics, biology, chemistry, and math with screen reader support and alternative input options.

Technology Accessibility Resources

- **Accessible K12 Computer Science Resources from Perkins:** A collection of accessible computer science materials for K-12 students.
- **Code.org Accessibility and Recommendations:** Offers guidelines for ensuring that Code.org resources are accessible to students with disabilities.
- **AccessCSforAll:** Provides accessible computer science curricula and tools for inclusive technology education.